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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/668,459	09/25/2000	SHUJI OZAWA	862.C2005	2103

5514 7590 04/06/2004

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EXAMINER	
THOMPSON, JAMES A	

ART UNIT	PAPER NUMBER
2624	3

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/668,459	OZAWA, SHUJI	
	Examiner	Art Unit	
	James A Thompson	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-9 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-9 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 25 September 2000 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figure 1A, figure 1B, and figure 1C should be designated by a legend such as -- Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: "1009" and "1010" in figure 2; and "2001" in figure 3. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to because "S5005" in figure 7 is mislabeled. "S5005" should be changed to "S6005" in order to be consistent with the description in the

specification on page 20, lines 8-11. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities:

It is replete with spelling and grammatical errors. Some examples include:

On page 2, line 1, "cuircuit" should be replaced with "circuit".

On page 2, line 22, "disconitinuitys" should be replaced with "discontinuities".

On page 3, line 18, either "of" or "in" should be struck.

Other spelling and grammatical errors are contained in the specification and the applicant is advised to correct these errors.

Appropriate correction is required.

Claim Rejections – 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alves (US Patent 5,093,869) in view of Takahashi (US Patent 5,923,822).

Claim 1 discloses an image processing apparatus. Claim 5 discloses an image processing method. Claim 9 discloses a control program stored on a computer-readable storage memory. The apparatus of claim 1 performs the steps of the method of claim 5 and the steps of the control program of claim 9. Claims 1, 5 and 9 are therefore discussed together.

Claims 2-4 further limit the apparatus of claim 1. Claims 6-8 further limit the method of claim 5. Claims 2-4 disclose, respectively, essentially the same limitations as claims 6-8. Therefore, claims 2-4 are discussed with claims 6-8, respectively.

Regarding claims 1, 5 and 9: Alves discloses an image processing apparatus (figure 2 of Alves) capable of processing a gradient fill object (column 3, lines 41-44 of Alves). The system of figure 2 of Alves processes data from objects that have particular gradient characteristics (column 3, lines 41-44 of Alves). Said gradient characteristics are caused in part by different shading effects due to the relative orientation of the sun (column 4, lines 5-9 of Alves).

Said apparatus comprises detection means (figure 2(33) of Alves) for detecting whether or not an object is a gradient fill object having gradation in one of horizontal and vertical directions (figure 3d and column 4, lines 22-25 of Alves). The directional lines shown in figure 3d of Alves are formed by the gradient based segmentation processor (figure 2(33) of Alves) (column 4, lines 22-25 of Alves). Said directional lines show the direction, whether horizontal, vertical or otherwise, of the gradient which fills the object (column 4, lines 58-60 of Alves), thus dividing the image into segments (column 4, lines 28-36 of Alves).

Said apparatus further comprises pixel count detection means (figure 2(32) of Alves) for detecting the number of pixels which have gradation with defined range (column 4, lines 26-30 of Alves). The different regions are detected and segmented according to gradient directions (figure 3d of Alves) and areas of intensity (figure 3e of Alves) (column 4, lines 23-30 of Alves). The gradation is within a certain range owing to the segmentation based on intensity flat regions (column 4, lines 42-45 of Alves). The level of homogeneity required defines the range since every pixel of a region will not be exactly the same owing to the shading effects due to the relative orientation of the sun (column 4, lines 5-9 of Alves). Furthermore, the number of pixels that are detected are consecutively present in a direction perpendicular to the direction of gradation detected by said detection means (figure 3d; figure 3e; and column 4, lines 50-58 of Alves). Segmenting the image into regions (flat linking) and region growth processing (column 4, lines 39-45 and lines 61-65 of Alves) inherently require the number of pixels since the different regions are divided into specified areas of pixels.

Alves does not disclose expressly replacement means for replacing, in the direction perpendicular to the direction of gradation, pixels in number equal to the number detected by said pixel count detection means with gradation of a start pixel located at a start position of the pixels.

Takahashi discloses replacement means (figure 4(8) of Takahashi) for replacing, in the direction perpendicular to the direction of a rainbow pattern (as clearly shown in figure 5b and figure 5e of Takahashi), pixels in number equal to the number detected by said pixel count detection means with color of a start pixel located at a start position of

the pixels (figure 5e; and column 6, lines 5-13 and lines 37-39 of Takahashi). The control section (figure 4(8) of Takahashi) performs the editing of the figures (column 6, lines 37-39 of Takahashi), said editing creating rainbow patterns in areas of the original image (figures 5a-5f and column 6, lines 46-55 of Takahashi). Said editing requires replacement of values since said rainbow patterns replace blank image regions (figure 5e and column 10, lines 5-12 of Takahashi), thus inherently requiring that the pixels replaced are the same number in the rainbow stripe. Since the rainbow pattern is in parallel lines (figures 5a-5f and column 6, lines 5-8 of Takahashi), then the pixels of equal or near-equal value are replaced perpendicular to the direction of the rainbow pattern.

Alves and Takahashi are combinable because they are from the same field of endeavor, namely image formation and processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a replacement means for replacing the values of certain regions with an equal number of detected pixels in a direction perpendicular to the pattern direction, as taught by Takahashi, said patterns being the gradation patterns stored for graph matching (column 3, lines 49-59 of Alves) and said regions being the various regions of the captured image, as taught by Alves. The motivation for doing so would have been to recreate the image with the stored pattern (column 6, lines 31-39 of Takahashi) since the captured image pattern does not exactly correspond with the pattern that is stored (column 3, lines 54-59 of Alves). Therefore, it would have been obvious to combine Takahashi with Alves to obtain the invention as specified in claims 1, 5 and 9.

Regarding claims 2 and 6: Alves discloses using gray level values (column 4, lines 8-12 of Alves), obtained by gray level calculation for all pixels of a first row of a gradient fill object (column 3, lines 54-59 and column 4, lines 5-12 of Alves). The various parts of the structure are illuminated, resulting in gray scale values (column 4, lines 5-12 of Alves). Structures are also stored in memory for comparison (column 3, lines 54-59 of Alves). The parts of the structures are identified based on the different intensities of the associated pixels (column 4, lines 8-9 of Alves). Therefore, the corresponding gray level values from the stored data are derived from the calculations for all pixels of the gradient fill object, since calculations are necessary in order to perform a comparison (column 3, lines 54-63 of Alves). The gradation occurs in a variety of directions, depending upon the relative orientation of the sun (column 4, lines 5-8 of Alves). This would include the horizontal direction, such as for certain oblique incidences upon a side wall of a building.

Alves does not disclose expressly that said replacement means copies said gray level values in number equal to the detected number of pixels and replaces pixels of rows next to the first row with the gray level values.

Takahashi discloses that said replacement means copies rainbow pattern pixel values in number equal to the detected number of pixels and replaces pixels of rows next to the first row with the rainbow color values (figure 5e; and column 6, lines 5-13 of Takahashi). Rainbow pixel varies replace selected blank regions (figure 5e and column 10, lines 5-12 of Takahashi), and must therefore inherently replace every pixel in order

to replace said blank regions. This occurs for every row and column of pixels (figure 5e and column 7, lines 27-35 of Takahashi).

Alves and Takahashi are combinable because they are from the same field of endeavor, namely image formation and processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to replace pixels of a pattern in number equal to the detected number of pixels in each row, as taught by Takahashi, said pattern being a gradation pattern, as taught by Alves. The motivation for doing so would have been to recreate the image with the stored pattern (column 6, lines 31-39 of Takahashi) since the captured image pattern does not exactly correspond with the pattern that is stored (column 3, lines 54-59 of Alves). Therefore, it would have been obvious to combine Takahashi with Alves to obtain the invention as specified in claims 2 and 6.

Regarding claims 3 and 7: Alves discloses using gray level values (column 4, lines 8-12 of Alves), obtained by gray level calculation for all pixels of a first row of a gradient fill object (column 3, lines 54-59 and column 4, lines 5-12 of Alves). The various parts of the structure are illuminated, resulting in gray scale values (column 4, lines 5-12 of Alves). Structures are also stored in memory for comparison (column 3, lines 54-59 of Alves). The parts of the structures are identified based on the different intensities of the associated pixels (column 4, lines 8-9 of Alves). Therefore, the corresponding gray level values from the stored data are derived from the calculations for all pixels of the gradient fill object, since calculations are necessary in order to perform a comparison (column 3, lines 54-63 of Alves). The gradation occurs in a

variety of directions, depending upon the relative orientation of the sun (column 4, lines 5-8 of Alves). This would include the vertical direction, such as for certain oblique incidences upon a flat roof of a building.

Alves does not disclose expressly that said replacement means copies said gray level values in number equal to the detected number of pixels and replaces pixels of columns next to the first column with the gray level values.

Takahashi discloses that said replacement means copies rainbow pattern pixel values in number equal to the detected number of pixels and replaces pixels of rows next to the first row with the rainbow color values (figure 5e; and column 6, lines 5-13 of Takahashi). Rainbow pixel varies replace selected blank regions (figure 5e and column 10, lines 5-12 of Takahashi), and must therefore inherently replace every pixel in order to replace said blank regions. This occurs for every row and column of pixels (figure 5e and column 7, lines 27-35 of Takahashi).

Alves and Takahashi are combinable because they are from the same field of endeavor, namely image formation and processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to replace pixels of a pattern in number equal to the detected number of pixels, as taught by Takahashi, in the vertical direction with said pattern being a gradation pattern, as taught by Alves. The motivation for doing so would have been to recreate the image with the stored pattern (column 6, lines 31-39 of Takahashi) since the captured image pattern does not exactly correspond with the pattern that is stored (column 3, lines 54-59 of Alves). Therefore, it

would have been obvious to combine Takahashi with Alves to obtain the invention as specified in claims 3 and 7.

Regarding claims 4 and 8: Alves discloses dividing the pixels which have gradation with defined range into a plurality of pixel groups (column 4, lines 5-9 of Alves). Said gradation can occur in different directions, depending upon the relative orientation of the sun (column 4, lines 6-8 of Alves).

Alves does not disclose expressly that said replacement means divides the pixels which have gradation with defined range and are consecutively present in the same row or same column into a plurality of pixel groups including pixels in an equal number sequentially from the first pixel, and in units of pixel groups belonging to the plurality of pixel groups, replaces gray level values of all pixels belonging to each pixel group with the gray level values of a first pixel belonging to the pixel group.

Takahashi discloses said replacement means using a rainbow pattern (figure 5e; and column 6, lines 5-13 of Takahashi). Said rainbow pattern divides the replacement pixels into parallel rows (column 6, lines 8-9 of Takahashi). Since the pixels in said rows are a rainbow pattern, then said pixels consecutively present in each row are within a defined gradation range (column 6, lines 19-22 and lines 29-30 of Takahashi). Furthermore, said rows can be considered a plurality of pixel groups, since said rows are the various stripes of a rainbow (column 6, lines 5-9 of Takahashi). Since said rainbow pattern is formed of stripes of a single color (column 6, lines 19-22 of Takahashi), the pixels of each group (or row) therefore contain the same pixel value as the first pixel of the associated group.

Alves and Takahashi are combinable because they are from the same field of endeavor, namely image formation and processing. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to replace pixel values using the single value of the first pixel for each parallel line, as taught by Takahashi, said value being the gradation value for each line, as taught by Alves. The motivation for doing so would have been to recreate the image with the stored pattern (column 6, lines 31-39 of Takahashi) since the captured image pattern does not exactly correspond with the pattern that is stored (column 3, lines 54-59 of Alves). Therefore, it would have been obvious to combine Takahashi with Alves to obtain the invention as specified in claims 4 and 8.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kurt Akeley, US Patent 5,347,618, September 13, 1994.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A Thompson whose telephone number is 703-305-6329. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K Moore can be reached on 703-308-7452. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson
Examiner
Art Unit 2624

JAT
March 31, 2004

THOMAS D.
TOMMY LEE
PRIMARY EXAMINER